



Center investigator is key player in expanding Mexico's train-the-trainer programs

Mexico and the United States have been working together on pesticide-related issues for several years through a technical working group that was formed under the North American Free Trade Agreement (NAFTA). But the collaboration began to assume a more formal structure in 1999, when Mexico adopted regulations similar to the United States' Worker Protection Standard. It was at that time that several agencies in the U.S. and Mexico decided to combine their training efforts. Last year, a cooperative train-the-trainer program called the "National Program to Reduce Pesticide Risks" was successfully implemented in Mexico, and by the close of 2002, the U.S.-Mexico collaboration resulted in qualification of 186 trainers in six of 32 states in Mexico.

Center Investigator Jennifer Weber, a pesticide safety educator for the Statewide IPM Program, was invited to assist in developing the content of and resources for train-the-trainer workshops offered in Mexico as a member of the pesticide safety project team of agricultural, health and labor professionals from Mexico and the United States.

The team presented two pilot workshops in the states of Morelos (see **Mexico** on page 2)



Train-the-trainer workshop Instructor Eduardo Rangel Machain (second from right), of the State Plant Protection Committee in Guanajuato, Mexico (CESAVEG), poses with course participants during a workshop activity in Morelos. (Photo by Grace Robiou)

NIOSH centers representing eight Western states collaborate at conference on ag health and safety

Nearly 100 participants discovered their common ground at a conference titled "Cultivating Collaborations: Health and Safety in Western Agriculture," Sept. 16–18, held in Coeur d'Alene, Idaho. Sponsored by the Pacific Northwest Agricultural Safety and Health Center (PNASH) and the Western Center for Agricultural Health and Safety at UC Davis, the conference was the first joint effort between the two West Coast NIOSH Centers.

The mission of PNASH, established by NIOSH in 1996, is

to prevent occupational disease and injury among farming, fishing and forestry operators, workers and their families in the Pacific Northwest region, which includes Alaska, Idaho, Oregon, and Washington.

The Western Center for Agricultural Health and Safety was established by NIOSH in 1990, and its purpose is to protect and improve the health and safety of farmers, farm workers, and their families in the Western region, which includes Arizona, California, Hawaii and Nevada.

(see **Coeur d'Alene** on page 4)

(Mexico from page 1)

(in February 2002) and Sinaloa (in March 2002). Weber, working with Grace Robiou of the U.S. Environmental Protection Agency, Rafael Paonessa of the Texas Department of Agriculture, and University of California Farm

training in the fields. So we needed to demonstrate a variety of training techniques they could use while covering different topics in different settings," said Weber.

On the third day of the workshop, participants used their training skills and tools in the field by conducting

trainers' manuals, and kits of various posters, pamphlets, stickers and labels for use in their own pesticide safety programs. Several of these training materials were adapted from those developed by the UC Statewide IPM Program and the U.S. Environmental Protection Agency for use during the national program in Mexico.

In addition to the initial pilot workshops held in Sinaloa and Morelos, team members conducted training sessions in the states of Nayarit, Puebla, Sonora and Coahuila and will continue to work together to offer more train-the-trainer workshops throughout Mexico.

Weber encourages other pesticide educators and researchers to participate as train-the-trainer workshop instructors in Mexico, and would like to reciprocate and expand on the program by inviting instructors from Mexico to participate in train-the-trainer workshops in the United States. "Some of the benefits of this type of program would be that we can exchange information about the health situation, farm size, application practices and environmental issues in both countries," said Weber. "This would be important information to include in trainings for handlers and fieldworkers who travel between Mexico and the U.S. for work." Weber adds that new state, federal, and international partnerships can also be formed that allow trainers an opportunity to share resources and expertise.

Since the first workshop in Morelos, participants report that they have conducted 12 field worker training sessions—an indication that the team's train-the-trainer efforts are paying off.

For more information, contact Jennifer Weber at jlweber@ucdavis.edu.



During 2002, pilot train-the-trainer workshops were held in the Mexican states of Morelos (# 23) and Sinaloa (# 8). Four additional workshops were held in the states of Nayarit (# 12), Puebla (# 25), Coahuila (# 5) and Sonora (# 3).

Advisor Jesús Valencia, joined representatives from Mexico's Ministry of Health, Ministry of Labor, State Plant Protection Committee, Ministry of Environment and National Resources, and Ministry of Agriculture in presenting three-day workshops. The first two days consisted of discussions, demonstrations, and hands-on activities on important pesticide safety topics such as label comprehension, personal protective equipment, health risks of exposure, and environmental protection.

"Hands-on techniques were very important, because, as we learned in the workshops, some people have access to audio-visual equipment and a nice training facility, while others will be

actual training sessions for local growers and agricultural employees.

The workshop planning team developed a questionnaire to measure the participants' knowledge of pesticide safety and handling concepts before and after the workshops. "The questionnaire turned out to be very beneficial to instructors, because we used answers to the questions as tools throughout the sessions to make sure we were covering key points," said Weber. "For example, one of the first things we noticed was that a few people thought a respirator cartridge should be changed only once a year. We knew we needed to cover that when we talked about respirators."

Workshop participants received training materials, including portable flip charts, pesticide safety

EPA proposes Border 2012 U.S.—Mexico Environmental Program

For decades, the United States and Mexico have collaborated on efforts to protect the environment and health of border communities. The formal foundation for these binational efforts began with the La Paz Agreement signed by Presidents De la Madrid and Reagan in 1983. A proposed new program called "Border 2012: U.S.-Mexico Environmental Program" would build upon the successes achieved under Border XXI, a five-year plan initiated in 1996 and ending in 2000, while also establishing a regionally focused border plan to facilitate environmental priority setting and planning at the regional and local levels.

The program would be jointly established by the U.S. Environmental Protection Agency, U.S. Department of Health and Human Services, Mexico's Secretariat of Health, tribal communities in the border region, and the environmental agencies from each of the 10 border states of Mexico and the United States. Border 2012 is envisioned as a 10-year, binational, results-oriented program

with five border-wide environmental goals:

1. Reduce water contamination.
2. Reduce air pollution.
3. Reduce land pollution.
4. Reduce exposure to pesticides, particularly exposure to children.
5. Reduce exposure to chemicals as a result of accidental chemical releases and/or deliberate acts of terrorism.

The Border 2012 concept is organized around coordinating bodies, including national coordinators, four regional workgroups, three border-wide workgroups, and three policy forums. The workgroups include:

- California-Baja California
- Arizona-Sonora
- New Mexico/Texas-Chihuahua
- Texas-Coahuila-Nuevo León-Tamaulipas.

Each regional workgroup would be co-chaired by one state and one federal representative from each country. Every two years the coordinating bodies will publish an implementation report that describes the status of current and proposed activities under the Border 2012 program. In addition, comprehensive mid-term and final progress reports that describe progress on meeting the goals and objectives of the program, including environmental indicators, will be published in 2006 and 2012 respectively.

The U.S. EPA is requesting comment from involved and interested parties on the draft Border 2012 plan. Individuals can submit comments directly by filling out the public comment form at www.epa.gov/usmexicoborder, or by calling the U.S. EPA San Diego Border Liaison Office at (619) 235-4765, or their toll-free line at (800) 334-0741.



U.S. EPA honors pesticide educators

The U.S. Environmental Protection Agency's Office of Pesticide Programs has recognized the efforts of two pesticide educators. Jennifer Weber, pesticide safety educator with the Statewide Integrated Pesticide Management Program at UC Davis, and Grace Robiou of the U.S. Environmental Protection Agency each received the Honor Award for Excellence in Teamwork. The award acknowledged their contributions as members of the Mexican National Training Program Team that helped to implement the National Pesticide Safety Train-the-Trainer Program in Mexico.



The train-the-trainer team in Puebla. Back row, from left: Rafael Paonessa, Favian Vazquez Villalobos. Middle row, from left: Juan Carlos Delgado, José Norberto Fernández Cevada, Eduardo Rangel Machain, Jennifer Weber, Yanet Villicaña, Ana Maria Merino Machorro. Front row, from left: Gustavo Gonzales, Tamara Múgica Campos, Tiburcio Ibarra, Adrian Negrete, Grace Robiou.

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(Coeur d' Alene from page 1)

The following article, submitted by Marcy J. Harrington of the PNASH Center, is a recap of the conference from the perspective of PNASH participants.

Q: What do you get when you put together investigators from four universities, two state agencies, and labor and management?

A: Synergy—as shared experiences develop into interventions to reduce farm workers' pesticide exposure and illness.

Participants learned about research going on in other states or organizations and laid the groundwork for future collaborative projects.

Here are some project ideas that were presented:

- ▶ Using Washington state Workers' Compensation data for agricultural injury studies.
- ▶ Developing a unified exposure assessment of the risks of musculoskeletal disorders in the most labor-intensive farm work.
- ▶ Creating a Web site to share new technologies and tools for conducting agricultural field studies.
- ▶ Assessing the literacy level of farm workers.
- ▶ Identifying language resources that will aid education and prevention activities with farm workers.
- ▶ Developing training programs for farm workers and physicians on pesticide illness and injury signs and symptoms.
- ▶ Making a video documentary of a community's efforts to reduce their pesticide exposure.



UC Davis Center Investigator Kiyoung Lee, Sc.D.,C.I.H., spoke during the discussion session titled "Engineering and Technologies to Aid the Researcher." (Photo by Gwen Oliver)

A variety of voices were heard. The opening session included Malcolm Butler, medical director of Columbia Valley Community Health; Lupe Gamboa, regional director of the United Farm Workers Union for Washington and Oregon; and farm owners Brad and Karyl Baugh.

"Each presented a story that placed our research into perspective—showing us farmers and farm workers who are achievers but face challenges of isolation, language barriers, and financial hardships" said a conference participant.

Panel discussions ranged from educational programs and risk communication to respiratory disease and engineering solutions. The panels met by e-mail and phone before the conference to develop their project ideas. PNASH Director Richard Fenske called the collaborations, particularly the one with the UC Davis Western Center, "the major goals of this conference and those that we were able to meet with great success."

Matt Keifer of PNASH said, "The opportunity to exchange points of view with

folks from Oregon, California and Washington state was both reinforcing—to see that they face some of the same difficulties—and informative, giving us insight into some of the barriers that interfere with collaboration. The information we have now will help us overcome those barriers. I'm optimistic."

The UC Davis Center will continue to co-host this annual conference with its partner at the University of Washington. They have begun planning this year's conference, to take place in San Francisco, Sept. 7–9. For more information, contact Gwen Oliver at gaoliver@ucdavis.edu, or visit <http://agcenter.ucdavis.edu> on the Web.



Adrienne Hidy, PNASH Center Manager, and Richard Fenske, Ph.D., M.P.H., Professor and PNASH Director. (Photo by Stacey Holland)

Industrial hygienist aims to protect farm workers

From 1997 to 2000, the California Environmental Protection Agency's Department of Pesticide Regulation reported 1,899 cases of occupational poisoning by agricultural pesticides—an average of 475 cases per year. But investigators know the situation is even worse than the numbers indicate, because incidents often go unreported. Some workers fail to report for fear they will lose their job. Many are not provided sufficient pesticide hazard training to recognize symptoms of poisoning, so they bear the symptoms, unaware that they are job related. In addition, many workers lack medical insurance and don't realize they are entitled to Workers' Compensation.

Anne Katten, an industrial hygienist with the California Rural Legal Assistance Foundation, and one of the newest members of the External Advisory Committee, was guest speaker during the Center's noon seminar on Dec. 6. Katten is co-author of a report released in 2002 titled "Fields of Poison 2002: California Farm Workers and Pesticides." The report, co-authored by representatives from Pesticide Action Network of North America (PANNA), United Farm Workers, California Rural Legal Assistance Foundation, and Californians for Pesticide Reform, is a compilation of information on reported farm worker pesticide poisonings and enforcement of pesticide worker health and safety laws throughout California.

During her talk, Katten described an incident involving a cotton weeding operation in Kings County during the summer of 1999. She

said, "At 5 a.m. some of the crew members were driving to a field they were supposed to hoe. As they were driving, they saw an aerial application going on, and they were drifted upon on the way to the field. They stopped and began to hoe their first field, which was next to one of the fields which had just



"Fields of Poison 2002" revealed the two most common sources of exposure leading to agricultural pesticide-related illnesses were drift from pesticide spraying and field residues. (Photo by Ken Hammond, Agricultural Research Service, USDA)

received aerial pesticide application. They went into the field and smelled very strong smells and began to feel symptoms. They were moved to another field, where they also smelled smells and started feeling worse, and they were again right next to another site where pesticides were applied by air earlier that morning. At that point the contractor said to the workers, 'You can leave if you want,' and some of the field workers left. Others went on to a third field, which was also near an application site. Some of the workers who went home later went to the hospital. They were kept overnight for observation, and

an investigation took place. This shows just how concentrated exposure can be."

According to Katten's report, the majority of pesticide poisonings occur when farm workers are doing field work, such as picking, field packing, weeding and irrigating. From 1997 to 2000 the two most common sources of exposure leading to agricultural pesticide-related illnesses were drift from pesticide spraying (51 percent) and field residues (25 percent).

Katten and her colleagues found serious weaknesses in California's county-based system for enforcing pesticide laws. Although a few counties conduct fairly thorough inspections and investigations and issue fines for violations quite regularly, most other California counties do not.

"We have found that enforcement tends to be fairly weak statewide," said Katten. "Less than 20 percent of the violations found led to fines. In addition, no violations were uncovered in 38 percent of reported illness cases between 1997 and 2000, suggesting that compliance with existing laws and regulations failed to protect farm workers from poisoning."

Katten and co-authors (Margaret Reeves of Pesticide Action Network and Martha Guzman of the United Farm Workers) of "Fields of Poison 2002: California Farm Workers and Pesticides" offered the following recommendations:

- Eliminating use of the most dangerous pesticides—those that cause cancer or (see **Protect** on page 8)

San Diego meeting taps multi-discipline expertise

Agricultural researchers, physicians, engineers, nurses and veterinarians gathered in San Diego Nov. 17–19 to share their expertise and research discoveries related to improving agricultural safety, rural health and the practice of rural medicine. They conferred during the 15th annual meeting of the North American Agromedicine Consortium.

Jointly sponsored by the Western Center for Agricultural Health and Safety at UC Davis and the University of California's Center for Occupational and Environmental Health, the meeting was held at the Hilton San Diego Resort on Mission Bay. Presenters discussed food safety, injury and illness

surveillance, prevention and intervention, health care access and delivery, susceptible populations, sociological and cultural issues, policy and economics, community health, diagnosis and treatment, and conditions specific to minorities,

women and children.

Andrew J. Holtz, a UC Davis student pursuing his doctoral degree in engineering, presented "Engineering Ergonomic Systems for Jobs in Agriculture: Winegrape Picking Container Management" as



Student Platform Participants: Jodi L. Smith from UC Davis; Risto Rautiainen from the Great Plains Center for Agricultural Health and Safety, University of Iowa; Andrew J. Holtz from UC Davis; Daniel E. Arrieta from UC Davis; and Theresa M. Costello from North Carolina State University, Department of Psychology. (Photo by Marc Schenker)

part of the conference's student platform presentations on the afternoon of Nov. 18.

"I found this to be a very interesting conference due to its diversity of attendees," Holtz said after returning to Davis. "From an

engineering standpoint, I can't say I've ever attended a conference that was so broad as far as the disciplines present. From biochemists, to anthropologists, to social health workers, to (of course) engineers, a tremendously large portion of the technical research community was

represented. I felt that being from the engineering field I was on one of the extreme ends of this spectrum. I think that just makes you realize that what we as scientists (engineers) do is part of a bigger picture.

"One of the things of particular interest I didn't expect to see at this conference was the concern for the role of the American farmer in our society as he or she nears retirement," Holtz continued. "People

from the Southeast and East Coast particularly emphasized this concern and really drove home the importance of their contribution to society. Being the son of a third-generation California farmer, I felt their point was very well stated. This is a point of view I don't see very much of in California, and more locally, within the UC Davis college of agriculture."

Jodi L. Smith, a graduate student in atmospheric science at UC Davis, also gave a presentation during the student platform. The title of her talk was "Characterization of Workers' Exposure to Mixed Dust at a Vineyard." She is a research
(Continued on page 7)

Correction:

The Fall issue of *News* contained a statistical error in the article "Silicosis and Mesothelioma in Rio de Janeiro." The third paragraph should have read: Malignant mesothelioma tumors affect more men than women and are responsible for 2.2 deaths [per million] yearly in the United States; 7.2 deaths [per million] in South Africa and 15.2 deaths [per million] in Australia. Because so little research information is available in Brazil, mesothelioma is not considered an occupational cancer there.

(San Diego *from page 6*)

assistant for Center investigator Kiyoun Lee, Sc.D., C.I.H.

"The one thing that impressed me most about this conference was the enormous diversity of its attendees," Smith observed. "We had researchers, students, medical professionals, those involved in legislation, and many others from different areas of the country. With the diversity come many different topics of interest, but it all seemed to come together within a common



Barbara Lee, R.N., Director of the National Children's Center for Rural and Agricultural Health and Safety, Marshfield, Wisc., presented "Childhood Agricultural Health and Safety: Current Issues and Implications for Practitioners." (Photo by Marc Schenker)

awareness and recognition of agricultural health issues.

"Coming to the conference with a California perspective and often attending conferences that, possibly inadvertently, focus on agricultural issues within California, it was nice to get a broader picture of agriculture," added Smith. "This was especially apparent with many speakers addressing family farmers and their unique issues. Robert McKnight [NAAC president, and director of the Southeast Center for

Agricultural Health and Injury Prevention at the University of Kentucky] and Deborah Reed [also from the Southeast Center] spoke on the issue of aging among agricultural populations, focusing on the aging family farmer, while Barbara Lee [director of the National Children's Center for Rural and Agricultural Health and Safety in Marshfield, Wisc.] talked about issues of childhood agricultural health and safety within the family farm context. In California, corporate farming often takes the place of family farming, and it was nice to see a different

human aspect of agriculture than we usually deal with."

The North American Agromedicine Consortium (NAAC) encourages programmatic teamwork of land-grant and medical universities and their partners to promote health and prevent disease among farmers and farm workers and their families, others in rural communities, and consumers of food and fiber. The next meeting of the NAAC will be held Oct. 19–23, 2003, in Saskatoon, Saskatchewan, Canada. For more information, visit the NAAC Web site at www.agromedicine.org.



Calendar of Events

March 7, 12:10–1p.m., TB 137, UC Davis Campus

Update on Paraquat Hazards in Agriculture

Marc Schenker, M.D., M.P.H., and Kiyoun Lee, Sc.D., C.I.H., Dept. of Epidemiology & Preventive Medicine, UC Davis

April 4, 12:10–1p.m., TB 137, UC Davis Campus

Agricultural Injury Among California Rural High School Students

Stephen McCurdy, M.D., Dept. of Epidemiology & Preventive Medicine, UC Davis

April 30, Noon–1p.m., Salinas, Calif.*

Workshop for Trainers of Agricultural Fieldworkers

May 1, 8 a.m.–4p.m., Salinas, Calif.*

Workshop for Trainers of Pesticide Handlers and Agricultural Field Workers

*Call (530) 752-5273 for information and registration.

May 2, 12:10–1p.m., TB 137, UC Davis Campus

Risk Assessment for Agricultural Workers

Jay Schreider, Ph.D., Primary State Toxicologist, Calif. Dept. of Pesticide Regulation; and Henry Buckwalter, M.S., Registration Scientist, Western U.S., Crompton Uniroyal Corp.

June 6, 12:10–1p.m., TB 137, UC Davis Campus

Farm Worker Partnerships

Martha Guzman, M.S., Legislative Specialist, United Farm Workers of America, AFL-CIO

Sept. 7–9, Holiday Inn Gateway, San Francisco

Changes & Challenges in Agriculture 2003

Co-sponsored by the Pacific Northwest Agricultural Safety and Health Center (PNASH), and the Western Center for Agricultural Health and Safety at UC Davis. **(Mark your calendar! More information to come.)**



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are extremely toxic to the nervous system to reduce the source of poisoning.

- ▶ Improving regulations to reduce farm worker exposure, including banning aerial spraying of pesticides, prohibiting backpack spraying of restricted-use pesticides, expanding buffer zones and requiring posted notification that a field has been treated with pesticides.
- ▶ Strengthening enforcement of existing laws, including setting minimum mandatory penalties, increasing fines for moderate and serious violations, and establishing a program funded by penalty revenues to cover medical expenses resulting from pesticide illnesses that are not work related.

- ▶ Improving reporting of pesticide poisonings, including training doctors about pesticide poisoning diagnosis and treatment, and requiring doctors to file reports of any diagnosis or treatment for pesticide poisoning.

Violations Contributing to Poisonings (1997–2000)		
	# of Cases	% of Total
Total No. of Reported Cases 1,899		
Violations Listed		
Early reentry	79	4.2
Failure to use required Equipment	156	8.2
Other misuse	461	24.3
Early reentry and other misuse	48	2.5
Other	36	1.9
Violation subtotals	780	41.1
Non contributory	190	10.0
None—no violation found	526	27.7
Non-violation subtotals	716	37.7
No determination made (1997 cases)	361	19.0
Violation unknown	42	2.2
Unknown subtotals	403	21.2
Source: California DPR PISP data 2002		

- ▶ Improving access to medical treatment for farm workers.
- ▶ Actively promoting safe and sustainable pest management alternatives.
- ▶ Ensuring farm worker and public right-to-know, including adequate posting of restricted-entry intervals and descriptions of acute and chronic health effects associated with each pesticide applied in an understandable format and language.

The report is available on the Pesticide Action Network of North America (PANNA) Web site, www.panna.org, or the Californians for Pesticide Reform Web site, www.pesticidereform.org. For more information, Anne Katten may be reached at (916) 446-7904, ext. 19, or by e-mail at akatten@cal.net.

